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EVALUATION OF BIOMASS-DERIVED STABILISING AGENTS FOR COLLOIDAL SILVER NANOPARTICLES VIA NANOPARTICLE TRACKING ANALYSIS (NTA)

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Nanoparticle Tracking Analysis (NTA) developed by NanoSight has been proved to be a highly useful, simple and efficient characterisation tool to differentiate between capping efficiencies of various biomass-derived stabilising agents (e.g. starch, alginic acid and a waste-derived hemicellulosic syrup) of aqueous colloidal silver suspensions. Results indicated that the use of a complex biorefinery-derived hemicellulosic syrup containing a mixture of C₅ and C₆ sugars as well as oligomers provided comparable capping and stabilisation properties to those of the most efficient pure polysaccharides including alginic acid. These findings illustrate the potential of waste-derived feedstocks for nanoparticle stabilisation in solution.